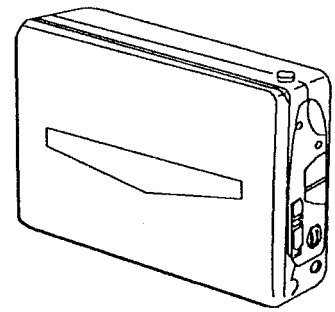
S/M Code No.0050 DATE OF ISSUE 6/1992 -

aiwa

HS-PX510
HS-PX310

SERVICE MANUAL



STEREO CASSETTE PLAYER

- BASIC TAPE MECHANISM : OZM – 1
- TYPE. AH, AE, AK, AZ (PX510) Y, YZ (PX310)

SPECIFICATIONS

HS-PX510

Maximum output
10mW + 10mW (EIAJ/32Ω)
15mW + 15mW (EIAJ/16Ω)

Power source
DC 3V
Dry cell battery: LR-03 (UM-4, AAA, R03 x 2)
Rechargeable battery: PB-4
Household AC power (using AC adaptor)

Battery life (EIAJ, playback 1 mW, using PB-4)
Approx. 2 hours [10 minutes (H model is 15 minutes) recharging]
Approx. 4 hours (60 minutes recharging)

Dimensions
108.5 (W) x 81.6 (H) x 25.7 (D) mm
(4 3/8 x 3 1/4 x 1 1/16 in.)
incl. projecting parts and controls

Weight
Approx. 215 g (7.5 oz)
incl. rechargeable battery

<AC adaptor>
Rated voltage:
AC-207H AC 115V/230V, switchable
AC-207U,C AC 120V
AC-207E,Z AC 220V
AC-207K AC 240V

Rated output
DC 2V 350mA

HS-PX310

Maximum output
10mW + 10mW (EIAJ/32Ω)
15mW + 15mW (EIAJ/16Ω)

Power source
DC 3V
Dry cell battery: LR-03 (UM-4, AAA, R03 x 2)
Rechargeable battery: PB-4
Household AC power (using AC adaptor)

Weight
Approx. 198 g (6.9 oz)

Battery life
Alkaline batteries (AAA, LR03 x 2)
Approx. 8 hours (EIAJ, PB 1mW output)
Manganese batteries (UM-4, AAA, R03 x 2)
Approx. 4 hours (EIAJ, PB 1mW output)
Rechargeable battery (PB-4)
Approx. 2 hours [EIAJ, PB 1mW/10 minutes (H model is 15 minutes) recharging]
Approx. 4 hours (EIAJ, PB 1mW/60 minutes recharging)

Dimensions
108.5(W) x 81.6(H) x 25.7(D) mm
($4\,^3/_8 \times 3\,^1/_4 \times 1\,^1/_{16}$ in.)
incl. projecting parts and controls

- Design and specifications are subject to change without notice.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

AIWA CO.,LTD.

Tokyo Japan

Printed in Japan

DISASSEMBLY INSTRUCTIONS

1. "Box, Battery and Cabinet, Rear" Removal

(See Figure – 1)

1) Remove the "Box, Battery" in the direction of arrow.
2) Remove 8 screws (Ⓐ× 1, Ⓑ× 3, Ⓒ× 1, Ⓓ× 1, Ⓔ× 2) and remove the "Cabinet, Rear".

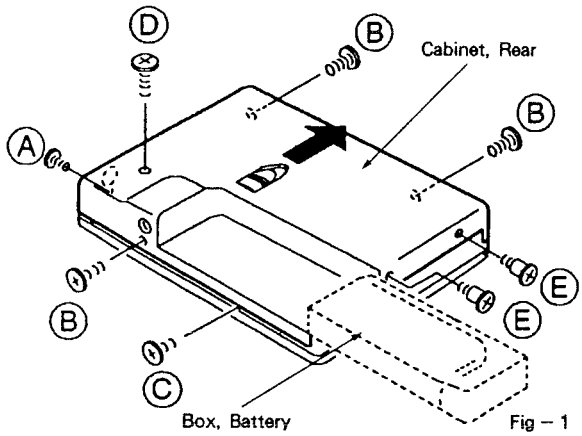


Fig – 1

1-1. "Cassette Lid ASSY" Removal (See Figure – 2)

1) Remove 5 screws (Ⓐ× 4, Ⓑ× 1) and take out the "Cassette Lid ASSY".

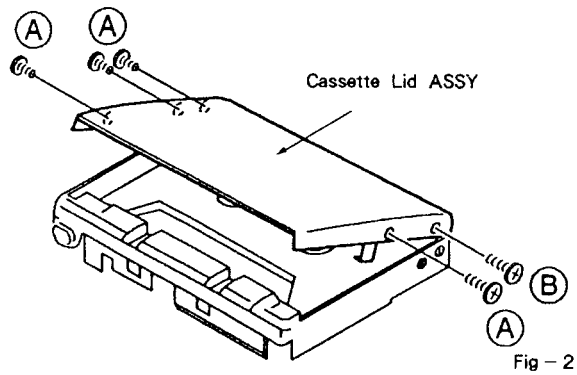


Fig – 2

2. "Frame, Control and Frame, Bottom" Removal

(See Figure – 3)

1) Remove 4 screws (Ⓐ× 2, Ⓑ× 1, Ⓒ× 1).

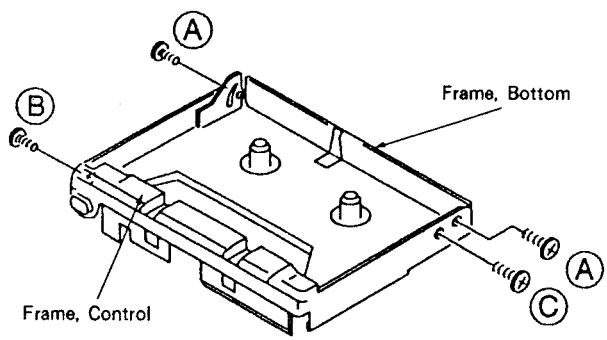


Fig – 3

2-1. "Frame, Control and Frame, Bottom" Removal

(See Figure – 4)

1) Remove the "Frame, Bottom" in the direction of the arrow ①.
2) Remove the "Frame, Control" in the direction of the arrow ②.

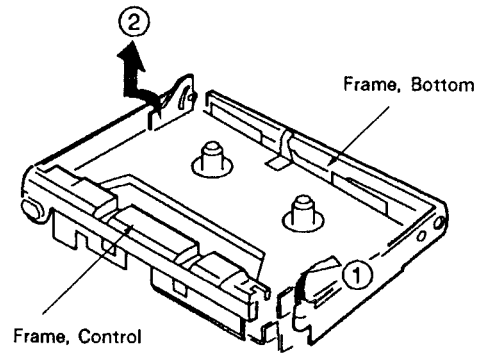


Fig – 4

3. "Main C.B" Removal (See Figure – 5)

1) Remove 4 screws (Ⓐ× 1, Ⓑ× 3) unsolder the soldered points and remove the "Main C.B"

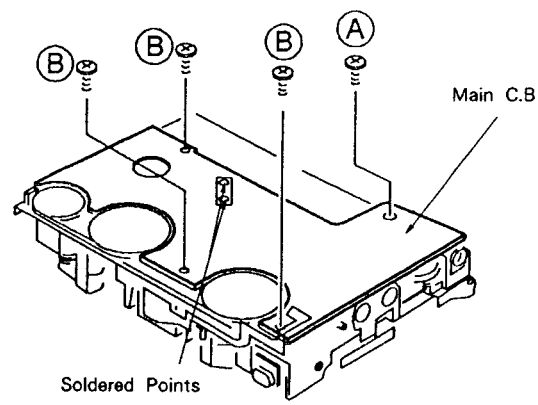


Fig – 5

4. Caution When Servicing

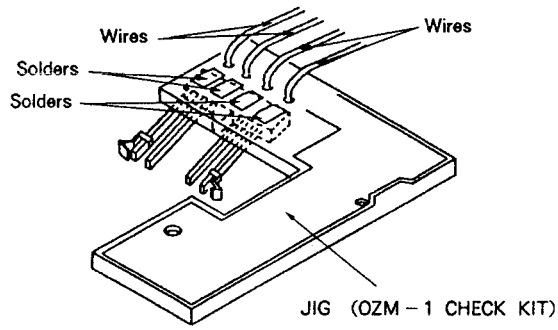
The operation check with the "Main Circuit Board" removed cannot be performed because the rotary switch of the "Cam, Main" is separated from the mechanism. Use the following JIG (OZM－1 CHECK KIT) to perform operform operation checl while the "Main Circuit Board".

①How to assemble the JIG (See Figure－6)

1) Assemble the JIG as shown in the figure.

OZM－1 JIG PARTS NO

PARTS NO	DISCRIPTION
09－021－052－010	OZM－1 CHECK KIT

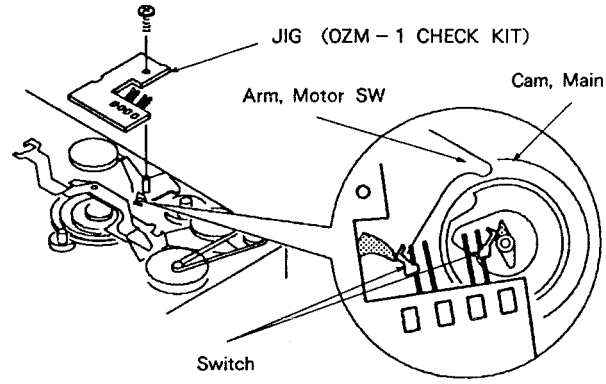


Fig－6

②How to attach the JIG (See Figure－7)

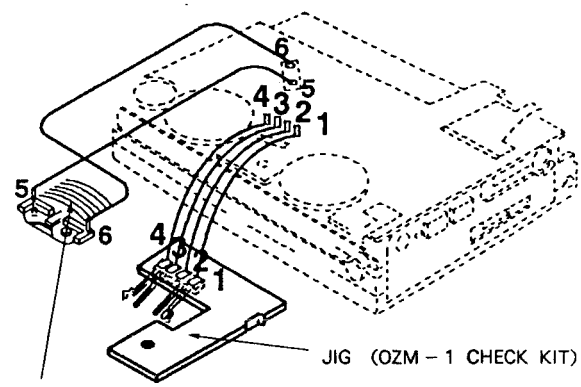
1) Tighten the JIG with screw.

Caution :Be careful that the "Cam, Main" and "Arm, Motor SW" do not ride over the switch when attaching the JIG.



Fig－7

2) Connect the JIG and MD Plunger to the "Main Circuit Board" using the wires as shown in the figure. (See Figure－8)

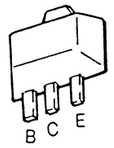


Fig－8

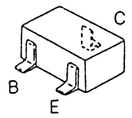
ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
===IC===		
	87-001-351-019	IC, AN6612S
	87-001-875-019	IC, BA1106FS
	87-001-876-019	IC, BA3513AFS
===TRANSISTOR===		
	89-112-134-019	TRANSISTOR, 2SA1213Y
	89-341-165-019	TRANSISTOR, 2SC4116GR
	87-026-472-010	TRANSISTOR, HN1A01F(Y)
	87-026-467-019	TRANSISTOR, HN1C01F(GR)
	87-026-470-019	TRANSISTOR, HN1C03 FB
	87-026-417-019	TRANSISTOR, RN1310
	87-026-428-019	TRANSISTOR, RN2310
	87-026-480-010	TRANSISTOR, RN4605
	87-026-481-010	TRANSISTOR, RN4607
	87-026-482-019	TRANSISTOR, RN4610
===DIODE===		
	87-001-166-019	DIODE, CHIP 1SS301
	87-001-167-019	DIODE, CHIP 1SS302
===MAIN CIRCUIT BOARD SECTION===		
C301	★87-012-271-019	CAP, CHIP SS 560P-50 B
C302	★87-012-271-019	CAP, CHIP SS 560P-50 B
C303	★87-012-271-019	CAP, CHIP SS 560P-50 B
C304	★87-012-271-019	CAP, CHIP SS 560P-50 B
C305	★87-010-673-019	CAP, CHIP ELECT 100-2
C306	★87-010-673-019	CAP, CHIP ELECT 100-2
C307	★87-010-786-019	CAP, CHIP SS 0.018-25
C308	★87-010-786-019	CAP, CHIP SS 0.018-25
C309	★87-012-286-019	CAP, CHIP SS 0.01-25 B(PX510)
C309	★87-016-114-019	CAP, CHIP SS 0.01-25 BJ(PX310)
C310	★87-012-286-019	CAP, CHIP SS 0.01-25 B(PX510)
C310	★87-016-114-019	CAP, CHIP SS 0.01-25 BJ(PX310)
C311	★87-010-805-019	CAP, CHIP S 1-16F
C312	★87-010-805-019	CAP, CHIP S 1-16F
C313	★87-012-270-019	CAP, CHIP SS 470P-50 B
C314	★87-012-270-019	CAP, CHIP SS 470P-50 B
C315	★87-010-805-019	CAP, CHIP S 1-16F
C316	★87-010-805-019	CAP, CHIP S 1-16F
C317	★87-010-674-019	CAP, CHIP ELECT 220-2 MV
C318	★87-010-674-019	CAP, CHIP ELECT 220-2 MV
C319	★87-012-282-019	CAP, CHIP SS 4700P-50
C320	★87-012-282-019	CAP, CHIP SS 4700P-50
C321	★87-010-828-019	CAP, CHIP SS 0.033-16
C322	★87-010-828-019	CAP, CHIP SS 0.033-16
C323	★87-012-286-019	CAP, CHIP SS 0.01-25 B
C324	★87-012-286-019	CAP, CHIP SS 0.01-25 B
C325	★87-010-828-019	CAP, CHIP SS 0.033-16
C326	★87-010-828-019	CAP, CHIP SS 0.033-16
C327	★87-010-831-019	CAP, CHIP SS 0.1-16F
C328	★87-010-831-019	CAP, CHIP SS 0.1-16F
C329	★87-010-805-019	CAP, CHIP S 1-16F
C330	★87-010-805-019	CAP, CHIP S 1-16F
C331	★87-010-805-019	CAP, CHIP S 1-16F
C332	★87-010-805-019	CAP, CHIP S 1-16F
C333	★87-010-829-019	CAP, CHIP SS 0.047-16F
C334	★87-010-829-019	CAP, CHIP SS 0.047-16F
C335	★87-010-829-019	CAP, CHIP SS 0.047-16F
C336	★87-010-829-019	CAP, CHIP SS 0.047-16F
C337	★87-012-270-019	CAP, CHIP SS 470P-50 B
C338	★87-012-270-019	CAP, CHIP SS 470P-50 B
C339	★87-010-787-019	CAP, CHIP SS 0.022-25B
C340	★87-010-787-019	CAP, CHIP SS 0.022-25B
C341	★87-010-805-019	CAP, CHIP S 1-16F
C342	★87-010-805-019	CAP, CHIP S 1-16F
C401	★87-010-673-019	CAP, CHIP ELECT 100-2
C402	★87-010-668-019	CAP, CHIP ELECT 220-4 MV
C403	★87-010-668-019	CAP, CHIP ELECT 220-4 MV
C405	★87-010-082-019	CAP, ELECT 220-4 5L
C406	★87-010-640-019	CAP, CHIP TANTALUM 22-4
C407	★87-010-082-019	CAP, ELECT 220-4 5L
C408	★87-010-805-019	CAP, CHIP S 1-16F
C409	★87-010-805-019	CAP, CHIP S 1-16F
C410	★87-010-424-019	CAP, CHIP TANTALUM 4.7-4
C411	★87-010-746-019	CAP, CHIP TANTALUM 10-4
C412	★87-010-746-019	CAP, CHIP TANTALUM 10-4
C413	★87-010-196-019	CAP, CHIP S 0.1-25 F
C414	★87-010-196-019	CAP, CHIP S 0.1-25 F
C415	★87-015-933-019	CAP, CHIP TANTALUM 1-10
C416	★87-015-934-019	CAP, CHIP TANTALUM 2.2-4
J1	87-049-549-019	JACK, DC(DC 2V)
LED1	87-001-573-019	LED, SLC22 VR(OPE/BATT)
R351	87-022-281-019	RES, CHIP 680 F(PX310)
R352	87-022-281-019	RES, CHIP 680 F(PX310)
R428	87-022-042-019	RES, CHIP M/F 0.51-1/8W
R429	87-022-043-019	RES, CHIP M/F 8.2K-1/8W
R439	87-022-229-019	RES, CHIP 3.9K F(PX310)
R440	87-022-229-019	RES, CHIP 3.9K F(PX310)
SFR301	★87-024-076-019	SFR, 1K
SOL1	87-045-310-010	SOLENOID(PLAY)
SW1	87-036-201-019	SLIDE SW(FWD/REV)
SW2	87-036-123-019	SLIDE SW(TAPE)
SW3	87-036-123-019	SLIDE SW(DOLBY NR)
SW4	87-036-123-019	SLIDE SW(DSL)
SW5	87-036-145-019	SLIDE SW(REMOTE)
SW6	87-036-073-019	TACT SW(STOP)
SW7	87-036-073-019	TACT SW(PLAY/DIR)
SW8	87-036-199-010	LEAF SW(POWER)(LATCH)
SW9	87-036-144-019	PUSH SW(CASSETTE)
SW10	87-036-203-019	SLIDE SW(FF/REW)
SW11	87-036-083-019	PUSH SW(HP SW)
VR1	87-024-361-019	VR, 20KAX2(VOLUME)
===HEAD FLEX. CIRCUIT BOARD SECTION===		
PH	87-046-381-010	HEAD ASSY(W/PCB-C)
===JACK FLEX. CIRCUIT BOARD SECTION===		
J2	87-009-218-019	JACK, 3.5 BK(PHONES)
PCB-D	★80-HK4-604-010	FLEXIBLE CIRCUIT BOARD 4P
===MISCELLANEOUS===		
M1	87-045-309-010	MOTOR ASSY
TM1	★82-HR4-204-010	BATTERY CONTACT

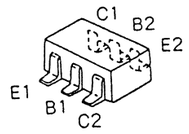
TRANSISTOR ILLUSTRATION



2SA1213



2SC4116
RN1310
RN2310



HN1A01F
HN1C01F
HN1C03FB
RN4605
RN4607
RN4610

○チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding

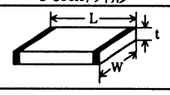
8 8 – □ □ □ – □ □ □

A
抵抗部品コード
Resistor Code

桁表示
Figure

抵抗値
Value of resistor

チップ抵抗
Chip resistor

Wattage 容量	Type 種類	Tolerance 許容誤差	Symbol 記号	Dimensions／寸法 (mm) Form／外形	L	W	t	Resistor Code : A 抵抗コード : A
1/32W	1608	±5%	CJ		1.6	0.8	0.35	108
1/10W	2125	±5%	CJ		2	1.25	1.45	118
1/8W	3126	±5%	CJ		3.2	1.6	0.5 ~0.7	128

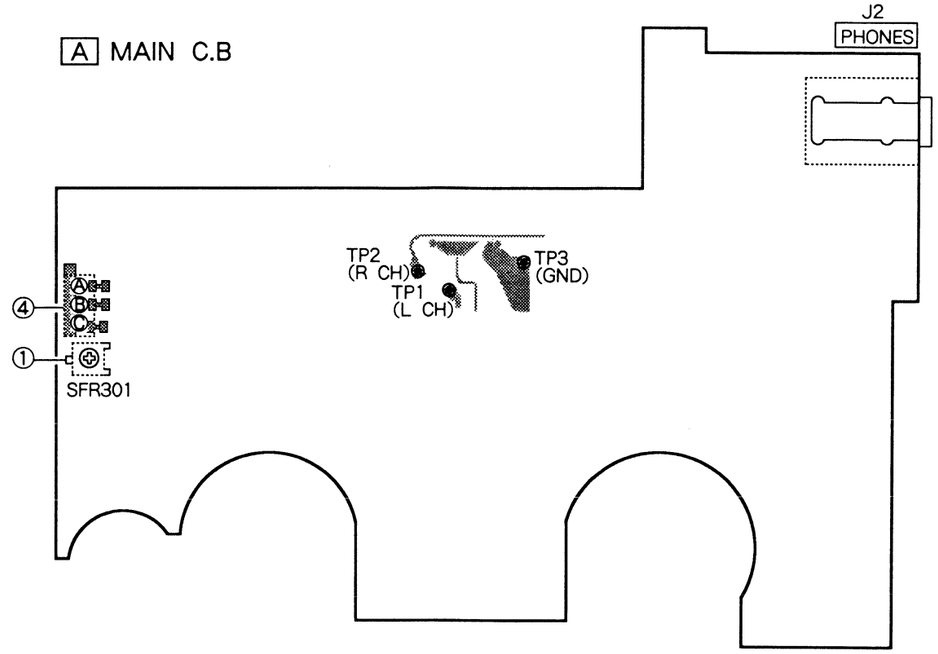
■ ACCESSORIES／PACKAGE LIST HS – PX510

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q,TY
	1	★82-HK5-901-019	INSTRUCTION BOOKLET. EX	※	1
	2	★82-HKB-951-019	CARRYING CASE (AHJ1.AZ1)		1
	3	★87-042-094-119	AC – 207HA (AHJ1.AZ1)		1
	4	★87-042-095-119	AC – 207EA (AE1.AE.AZ1)		1
	5	★87-042-096-119	AC – 207KA (AK1)		1
	6	★87-047-116-010	PB – 4 NA Y		1
	7	★87-048-229-019	HP – MR30 (AE)		1
	8	★87-048-242-019	HP – R36NA (AHJ1.AK1.AE1.AZ1)		1

■ ACCESSORIES／PACKAGE LIST HS – PX310

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q,TY
	1	★82-HKB-901-019	INSTRUCTION BOOKLET. Y	※	1
	2	★82-HKB-951-019	CARRYING CASE (YJ1.YZ1)		1
	3	★87-048-230-019	HP – A270 A (YB)		1
	4	★87-048-238-019	HP – 23NA (Y1.YJ1.YZ1)		1

ADJUSTMENT



PRACTICAL SERVICE FIGURE

< TAPE PLAYER SECTION >

1. Tape Speed Adjustment
   Settings : • Test tape : TTA-100
   • Test point : PHONES JACK
   • Adjustment location : SFR301
   Method : Play back the test tape, adjust for 3000 + 10Hz, – 5Hz at FWD and less than 45Hz at REV.

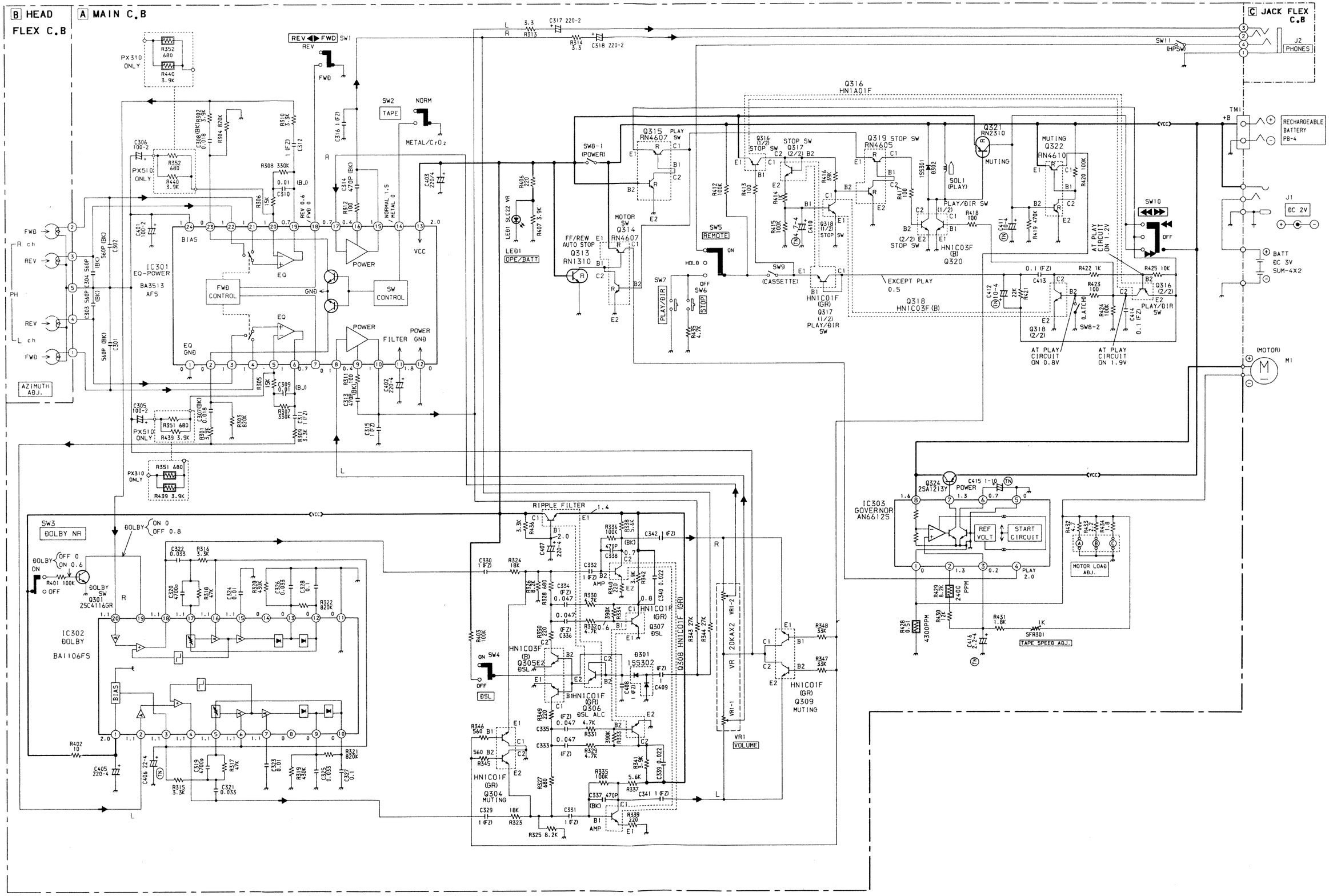
2. Dolby Level Check
   Settings : • Test tape : TTA-200
   • Test point : TP1 (L ch), TP2 (R ch), TP3 (GND)
   • DOLBY SW : OFF
   • TAPE SELECTOR : NORM
   • DIRECTION : FWD
   • VOLUME : MIN "0"
   Method : Connect at electrolytic capacitor (10 μF/16V) to measured equipment and TP1 (2), check the voltage for 100mV + 1.5dB, – 0.5dB.

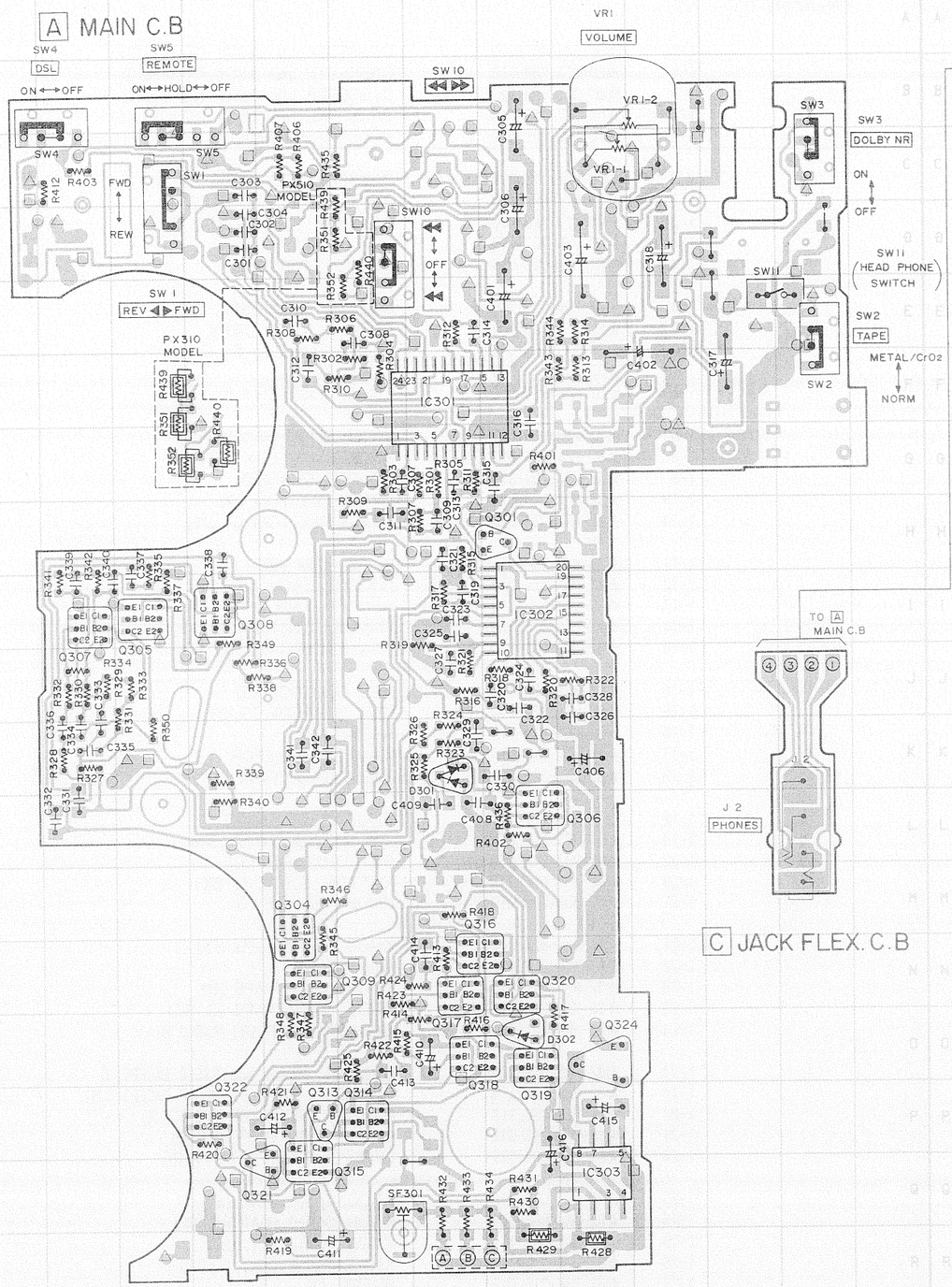
3. Azimuth Adjustment
   Settings : • Test tape : TTA-320
   • Test point : PHONES JACK
   • Adjustment location : Azimuth adjustment screw
   Method : Play the 8kHz signal of the test tape and adjust so the output is maximum and the waveforms in the Lissajours' figure are in phase.

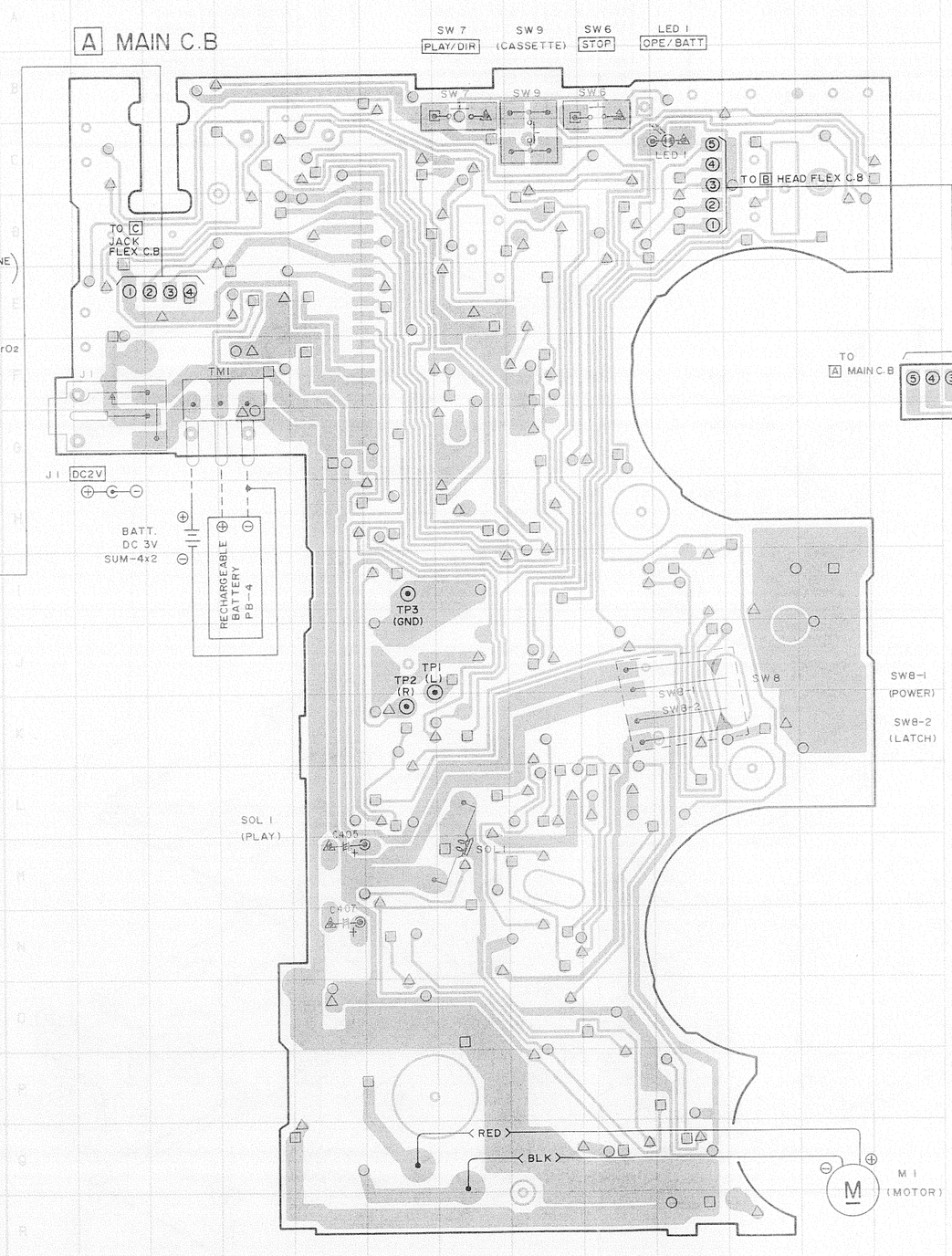
4. Motor load Adjustment
   Refer to the REF No. SI•88-037-OP of service technical information.

Tape speed : 3000 ± 30Hz
Wow & flutter : Less than 0.45% (JIS)
Take – up torque : 20g-cm~37g-cm (FWD, REV)
F.F & Rew torque : 110 ± 40g-cm
Back tension : 3 ± 1.5g-cm (FWD, REV)
S/N ratio : More than 45dB
Distortion : Less than 3.0%
Noise level : Less than 3.0mV (VOL MAX)
Frequency response : 63Hz~8kHz ± 5.0dB (NORMAL)

SCHEMATIC DIAGRAM

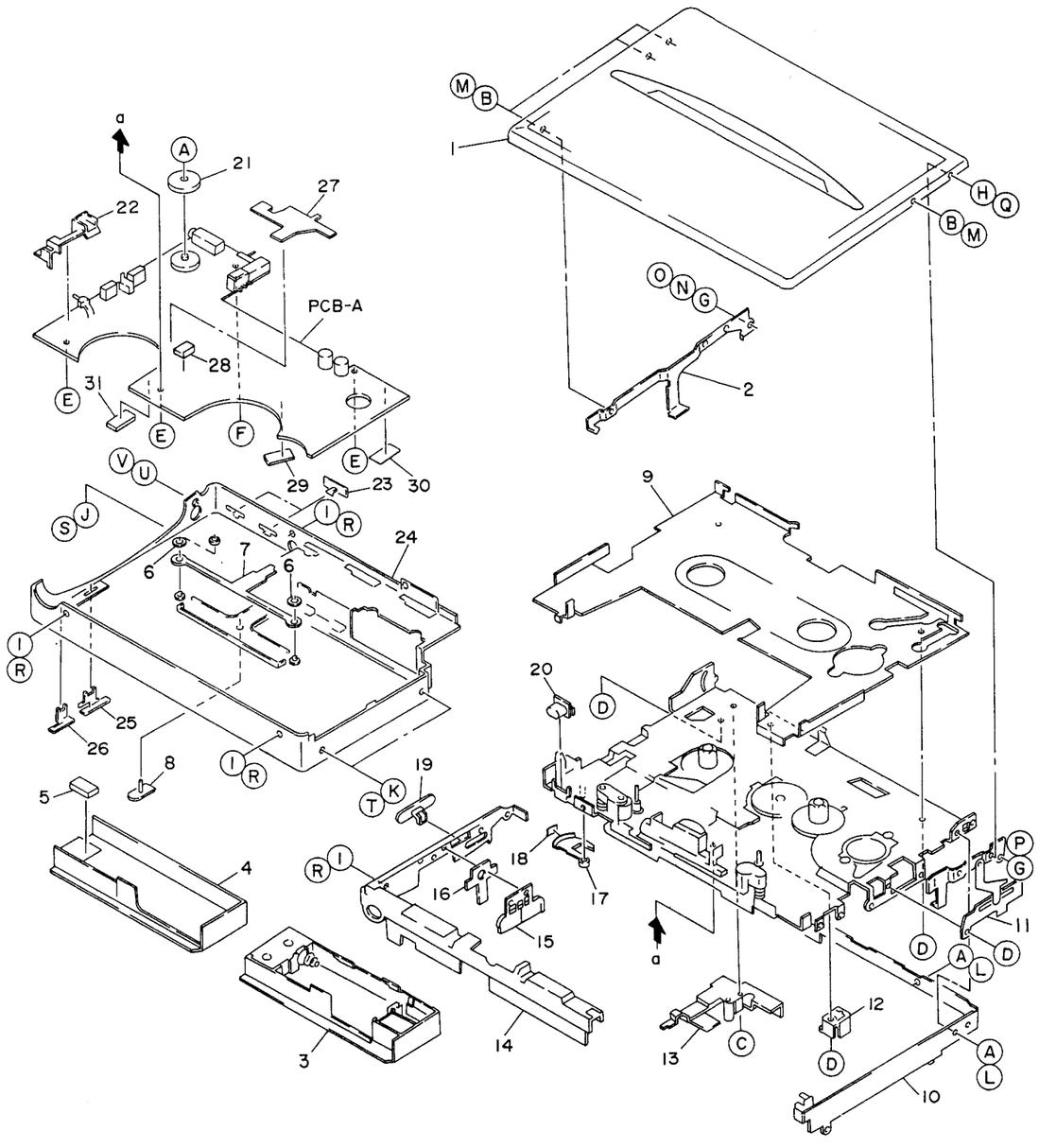



A MAIN C.B
SW4
DSL
ON ↔ OFF
SW5
REMOTE
ON ↔ HOLD ↔ OFF
SW10
VR1
VOLUME
VR1-2
VR1-1
SW3
SW3
DOLBY NR
ON
OFF
SW11
(HEAD PHONE SWITCH)
SW2
TAPE
METAL/CrO2
NORM
SW1
REV ◀▶ FWD
PX310 MODEL
PX510 MODEL
FWD
REV
IC301
IC302
IC303
Q301
Q302
Q303
Q304
Q305
Q306
Q307
Q308
Q309
Q310
Q311
Q312
Q313
Q314
Q315
Q316
Q317
Q318
Q319
Q320
Q321
Q322
Q324
D301
D302
SF301
TO A MAIN C.B
J 2
PHONES
C JACK FLEX. C.B


A MAIN C.B
SW 7
PLAY/DIR
SW 9
(CASSETTE)
SW 6
STOP
LED 1
OPE/BATT
TO C JACK FLEX C.B
TO B HEAD FLEX C.B
TO A MAIN C.B
J1 DC2V
BATT. DC 3V SUM-4x2
RECHARGEABLE BATTERY PB-4
TP3 (GND)
TP1
TP2 (L)
(R)
SW8-1 (POWER)
SW8-2 (LATCH)
SOL 1 (PLAY)
RED
BLK
M 1 (MOTOR)
B HEAD FLEX C.B

EXPLODED VIEW – 1

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A	87-067-511-019	S-SCREW +1.4-2 (B)	I	87-067-359-019	S-SCREW +1.4-2.5 (B)	Q	87-067-592-019	Q+1.4-2
B	87-067-753-019	V+1.4-1.6 (B)	J	87-067-405-019	VT(C)1.4-6 HL	R	87-067-429-019	S-SCREW +1.4-2.5
C	87-232-508-319	Q +1.4-3.5 (B)	K	87-067-595-019	SCREW HINGE M1.4 (B)	S	87-067-949-019	VT(C)1.4-6
D	87-261-501-319	V+1.4-1.6	L	87-067-950-019	S-SCREW+1.4-2	T	87-067-594-019	S-SCREW HW 1.4
E	87-067-732-019	VT 1.4-3 HL	M	87-067-754-019	V+1.4-1.6	U	87-067-384-019	VT1.4-3.5 HL
F	87-067-437-019	S-SCREW M1.4-2	N	82-690-231-019	PANEL SCREW M1.4-2.6 (B)	V	87-067-535-019	VT1.4-3.5
G	87-067-738-019	S-SCREW HINGE 1.4-1 (B)	O	82-690-224-019	PANEL SCREW M1.4-2.6			
H	87-067-593-019	Q+1.4-2 (B)	P	87-067-739-019	S-SCREW HINGE 1.4-1			

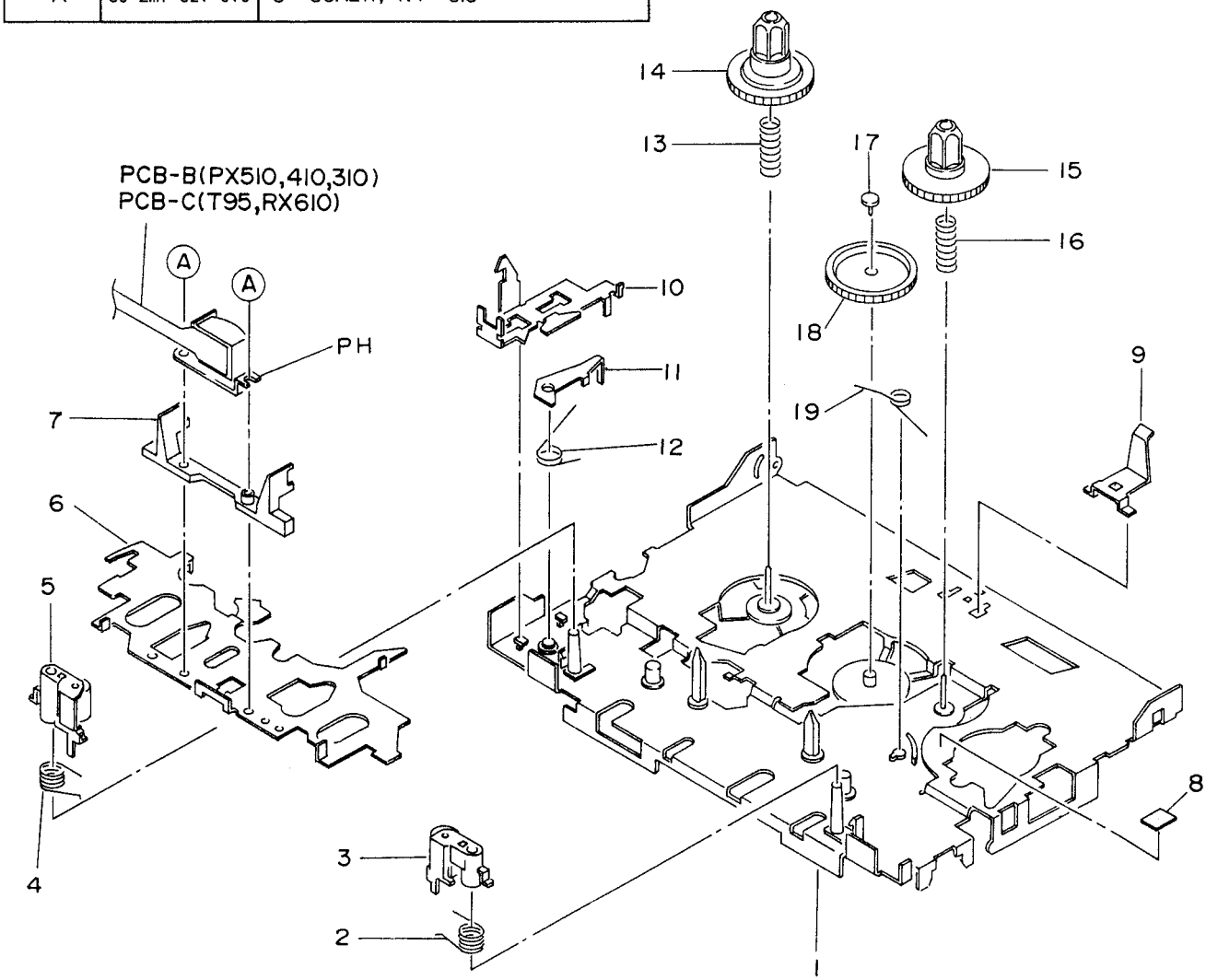


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	1-1	★09-027-981-010	CASSETTE LID ASSY (B) (PX510)	※	1
	1-1	★09-027-980-010	CASSETTE LID ASSY (B) (PX310)	※	1
	1-1	★09-027-993-010	CASSETTE LID ASSY (G) (PX310)	※	1
	1-1	★09-027-992-010	CASSETTE LID ASSY (ST) (PX310)	※	1
	1-2	★82-HKB-201-019	HOLDER, CASSETTE R	※	1
	1-3	★09-027-979-010	BATTERY BOX ASSY (B)	※	1
	1-3	★09-027-994-010	BATTERY BOX ASSY (G)	※	1
	1-3	★09-027-995-010	BATTERY BOX ASSY (ST)	※	1
	1-4	★82-HKB-007-119	BOX, BATTERY (B)	※	1
	1-4	★82-HKB-020-019	BOX, BATTERY (G)	※	1
	1-4	★82-HR4-035-019	BOX, BATTERY (ST)	※	1
	1-5	★82-HR4-218-119	CUSHION, S BATTERY		1
	1-6	★82-HR4-215-019	SHEET, DIA 2.4 – 6 – 0.3		2
	1-7	★82-HR4-211-119	LEVER, LOCK		1
	1-8	★82-HR4-018-019	KNOB, SLIDE BOX (B)		1
	1-8	★82-HKB-010-019	KNOB, SLIDE BOX (G)	※	1
	1-8	★82-HR4-051-019	KNOB, SLIDE BOX (ST)		1
	1-9	★82-HR4-209-019	HOLDER, CHASSIS		1
	1-10	★82-HR4-004-119	FRAME BOTTOM (B)		1
	1-10	★82-HR4-034-019	FRAME BOTTOM (G, ST)		1
	1-11	★82-HKB-204-010	SLIDE ARM ASSY	※	1
	1-12	★82-HR4-203-019	HOLDER, JACK DC		1
	1-13	★82-HR4-202-119	HOLDER, JACK HP		1
	1-14	★82-HR4-003-119	FRAME, CONTROL (B)		1
	1-14	★82-HR4-033-119	FRAME, CONTROL (G, ST)		1
	1-15	★82-HR4-010-019	KEY, CONTROL (B)		1
	1-15	★82-HR4-058-019	KEY, CONTROL (G, ST)		1
	1-16	★82-HR4-214-019	SHEET, KEY		1
	1-17	★80-HK4-213-110	ARM, DR MONITOR		1
	1-18	★80-HK4-234-019	SHEET, DIRECTION		1
	1-19	★82-HR4-011-119	KNOB, SLIDE FR (B)		1
	1-19	★82-HR4-059-019	KNOB, SLIDE FR (G, ST)		1
	1-20	★82-HR4-012-019	BUTTON, EJECT (B)		1
	1-20	★82-HR4-060-019	BUTTON, EJECT (G, ST)		1
	1-21	★84-438-009-210	KNOB, VOLUME (B)		1
	1-21	★84-438-027-210	KNOB, VOLUME (G, ST)		1
	1-22	★82-HR4-210-010	HOLDER, LED		1
	1-23	★82-HR4-007-010	KNOB, SLIDE TAPE (B)		2
	1-23	★82-HR4-055-019	KNOB, SLIDE TAPE (G, ST)		2
	1-24	★82-HK5-001-010	CABINET, REAR (B) (PX510 H)	※	1
	1-24	★82-HK5-003-010	CABINET, REAR (B) (PX510 EXCEPT H)	※	1
	1-24	★82-HKB-004-119	CABINET, REAR (B) (PX310 EXCEPT YJ1)	※	1
	1-24	★82-HKB-005-119	CABINET, REAR (B) (PX310 YJ1)	※	1
	1-24	★82-HKB-018-019	CABINET, REAR (G) (PX310)	※	1
	1-24	★82-HKB-009-019	CABINET, REAR (ST) (PX310)	※	1
	1-25	★82-HR4-009-119	KNOB, SLIDE RMT (B)		1
	1-25	★82-HR4-057-019	KNOB, SLIDE RMT (G, ST)		1
	1-26	★82-HR4-008-119	KNOB, SLIDE DSL (B)		1
	1-26	★82-HR4-056-019	KNOB, SLIDE DSL (G, ST)		1
	1-27	★82-HR4-216-019	SHEET, AF		1
	1-28	★82-HR4-597-019	CLOTH 6 – 8		1
	1-29	★82-HK9-213-019	CLOTH 15 – 10		1
	1-30	★82-HR4-217-019	SHEET 15 – 10		1
	1-31	★82-HR4-222-019	CUSHION, S 12 – 5 – 2		1
		★09-027-975-010	APPEARANCE SCREW KIT (B, G)	※	1
		★09-028-008-010	APPEARANCE SCREW KIT (ST)	※	1

EXPLODED VIEW – 2

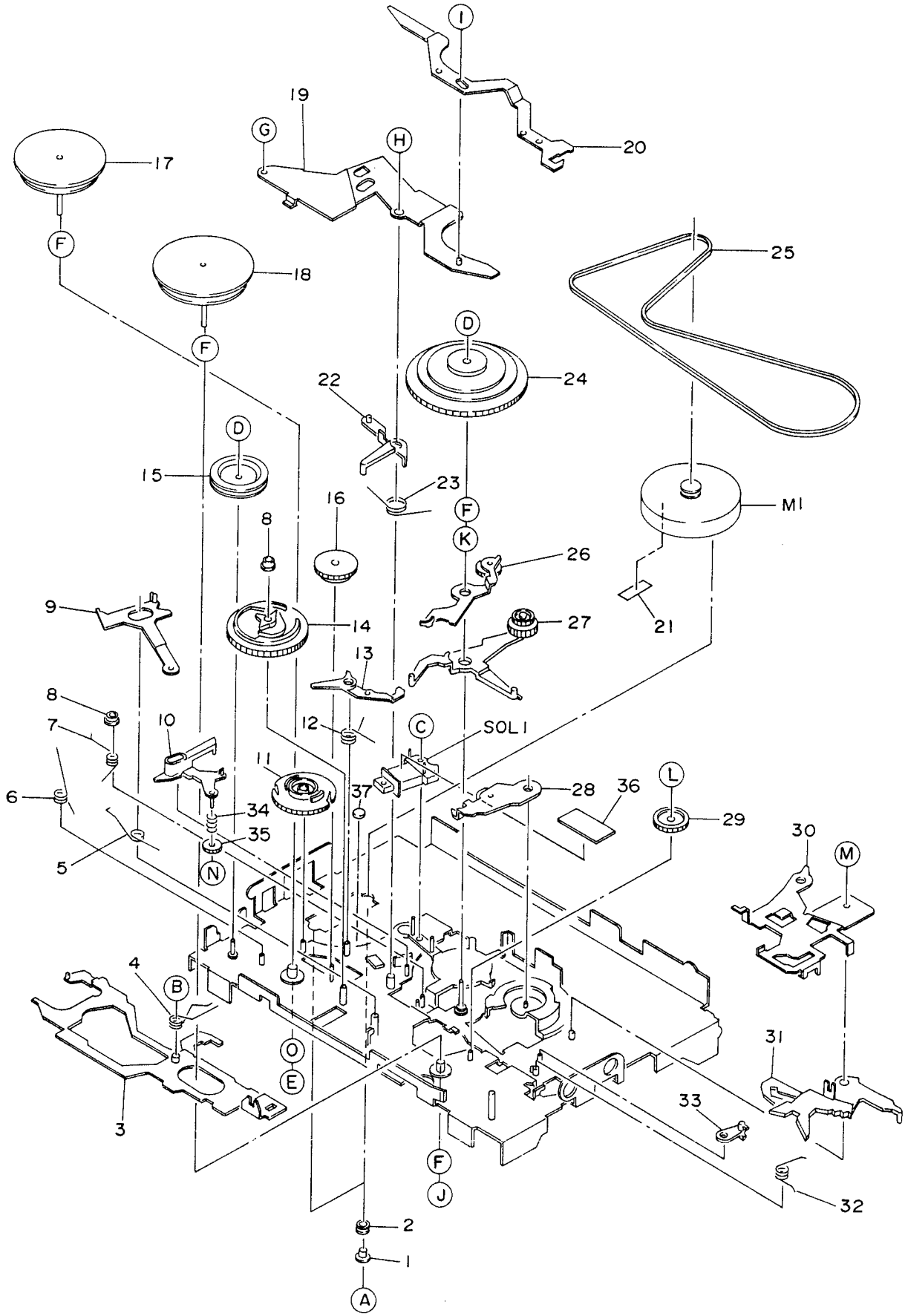
REF. NO.	PART NO.	DESCRIPTION
A	80-ZM1-327-010	S – SCREW, 1.4 – 5.5



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	2-1	★80-ZM1-316-110	OUT – SERT ASSY		1
	2-2	★80-ZM1-329-010	T – SPRING, PINCH F		1
	2-3	★80-ZM1-221-110	LEVER PINCH F ASSY		1
	2-4	★80-ZM1-330-010	T – SPRING, PINCH R		1
	2-5	★80-ZM1-227-110	LEVER PINCH R ASSY		1
	2-6	★80-ZM1-319-010	CHASSIS SLIDE ASSY		1
	2-7	★80-ZM1-321-010	GUIDE, TAPE		1
	2-8	★87-067-790-010	SHEET 3 – 3 – 0.2		1
	2-9	★84-530-213-010	P – SPRING, PUSH A		1
	2-10	★80-ZM1-251-010	PLATE, EJECT		1
	2-11	★80-ZM1-252-010	LEVER, CONNECT		1
	2-12	★80-ZM1-287-010	T – SPRING, LOCK OFF		1
	2-13	★80-ZM1-283-010	C – SPRING, REVERSE REEL		1
	2-14	★80-ZM1-260-110	REEL, TABLE R		1
	2-15	★80-ZM1-259-010	REEL, TABLE F		1
	2-16	★80-ZM1-284-110	C – SPRING, FORWARD REEL		1
	2-17	---	CAP, CONNECT		1
	2-18	★80-ZM1-258-010	GEAR, CONNECT		1
	2-19	★80-ZM1-276-010	T – SPRING, PLAY		1

EXPLODED VIEW – 3

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A	87-237-525-310	O+1.7-2.5	F	80-ZM1-308-010	SHEET 1.85-3.45-0.05	K	87-067-136-010	STE 1.3-3.7-0.25
B	87-067-742-010	PW 2.13-3.5-0.25(SLT)	G	87-232-508-310	O+1.4-3.5(3)	L	87-067-516-010	PW 3-1.58-0.25(SLT)
C	87-067-246-010	V+1.4-3.7	H	87-268-505-310	V+1.4-2.5	M	80-ZM1-294-010	SPECIAL SCREW M1.7-3-0.2
D	87-544-440-010	PW 1.2-4-0.25(SLT)	I	87-067-895-010	PW 1.5-4-0.2 SLT	N	87-067-367-010	PW 0.95-2.6-0.25C
E	87-067-788-010	SHEET 1.15-3.5-0.3(CUT)	J	87-067-741-010	SHEET 1.37-3-0.5(CUT)	O	87-067-789-010	PW 1.6-3.45-0.25



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	3-1	★86-541-449-010	COLLAR, MOTOR B		2
	3-2	★86-511-445-010	G CUSHION, MOTOR		2
	3-3	★80-ZM1-244-110	LEVER DIRECTION ASSY		1
	3-4	★80-ZM1-282-310	T – SPRING, TAKE – UP		1
	3-5	★80-ZM1-273-010	T – SPRING, MAIN CAM		1
	3-6	★80-ZM1-275-010	T – SPRING, DIRECTION		1
	3-7	★80-ZM1-274-010	T – SPRING, AUTO		1
	3-8	---	COLLAR, PWB P		2
	3-9	★80-ZM1-263-110	ARM, MOTOR SW		1
	3-10	★80-ZM1-239-110	ARM, AUTO		1
	3-11	★80-ZM1-255-010	CAM, DIRECTION		1
	3-12	★80-ZM1-277-110	T – SPRING, CHANNEL LOCK		1
	3-13	★80-ZM1-261-110	ARM, DIRECTION LOCK		1
	3-14	★80-ZM1-253-010	CAM, MAIN		1
	3-15	★86-541-235-110	PULLEY, RELAY B		1
	3-16	★80-ZM1-257-010	GEAR, B		1
	3-17	80-ZM1-214-110	FLYWHEEL F ASSY		1
	3-18	80-ZM1-218-010	FLYWHEEL R ASSY		1
	3-19	★80-ZM1-265-210	PLATE HOLDER ASSY		1
	3-20	★80-ZM1-270-310	LEVER, LOCK OFF		1
	3-21	★80-ZM1-296-010	SHEET, MOTOR 16 – 5		1
	3-22	★80-ZM1-266-010	ARM, LOCK MD		1
	3-23	★80-ZM1-278-010	T – SPRING, PLUNGER ARM		1
	3-24	★80-ZM1-209-410	GEAR MAIN ASSY		1
	3-25	80-ZM1-291-010	BELT, SQ 72.9		1
	3-26	★80-ZM1-230-210	ARM TAKE – UP F ASSY		1
	3-27	★80-ZM1-241-110	ARM FF REW ASSY		1
	3-28	★80-ZM1-234-010	ARM TAKE – UP R ASSY		1
	3-29	★80-ZM1-256-110	GEAR, A		1
	3-30	★80-ZM1-269-110	PLATE, HOLDER LEFT		1
	3-31	★80-ZM1-264-310	LEVER, FF REW		1
	3-32	★80-ZM1-281-010	T – SPRING, FF REW		1
	3-33	★80-ZM1-262-010	LEVER, FR STOP		1
	3-34	★80-ZM1-272-010	C – SPRING, AUTO		1
	3-35	★80-ZM1-240-010	GEAR, AUTO		1
	3-36	★80-ZM1-306-010	SHEET 5 – 20 – 0.05		1
	3-37	★80-ZM1-309-010	G – CUSHION 3 – 0.5		1

SPRING APPLICATION POSITION